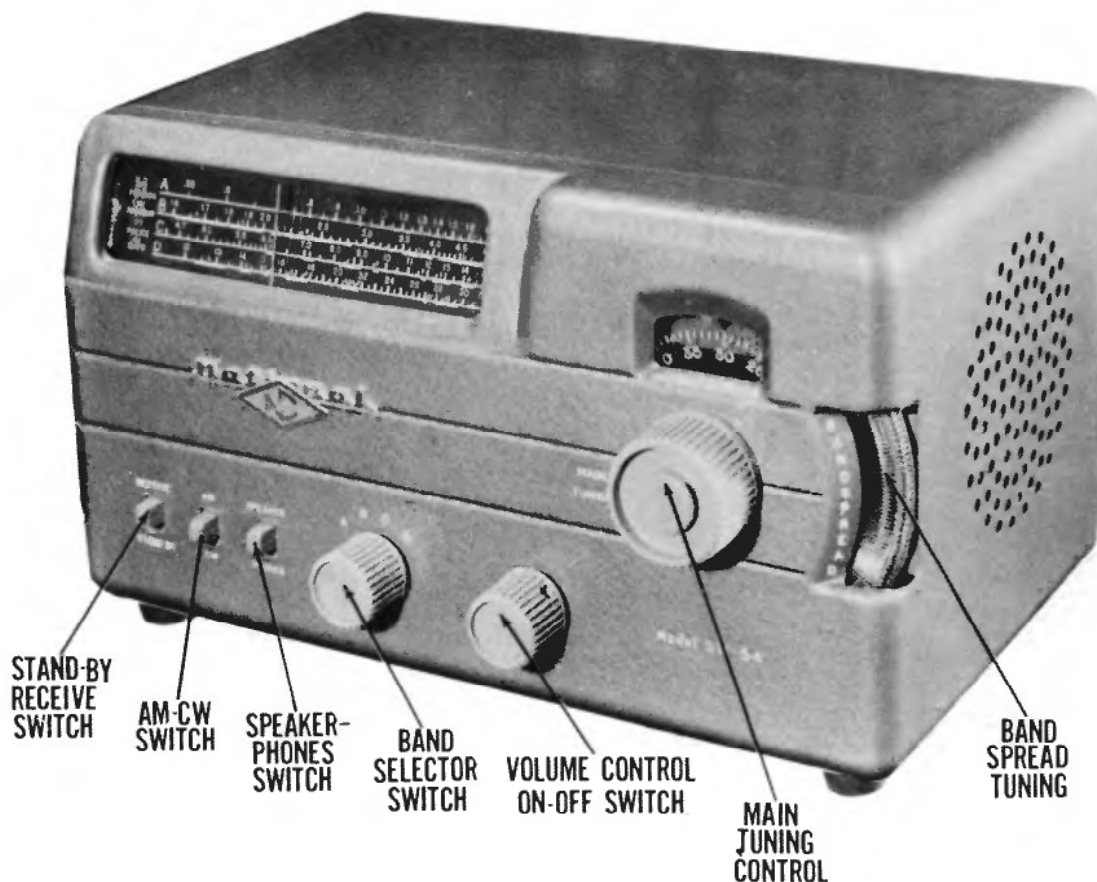




NATIONAL
MODEL SW-54



NATIONAL
MODEL SW-54

TRADE NAME National, Model SW-54
MANUFACTURER National Co., Malden, Mass.
TYPE SET AC-DC Operated Multi-Band Superheterodyne Receiver
TUBES (FIVE) Types 12BE6 Converter, 12BA6 CWO-IF Amp., 12AV6 Det. -AVC-AF, 50C5 Power Output, 25Z5GT Rectifier

POWER SUPPLY 105-130 Volts AC-DC RATING .26 Amp. @ 117 Volts AC
TUNING RANGE— Band "A" .54-1.6MC, Band "B" 1.6-4.7MC, Band "C" 4.6-14.5MC, Band "D" 12-30MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set pointer even with the left hand end of the white calibration lines.
Use isolation transformer if available. If not, connect a .01MFD capacitor in series with low side of signal generator and chassis.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1. .01MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to chassis.	455KC (400V Mod.)	A	1.6MC	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2. 300Ω	High side to left hand "A" terminal, (connect link). Low side to chassis.	1.6MC	"	"	"	A5, A6	Adjust for maximum output.
3. "	"	4.5MC	B	4.5MC	"	A7, A8	"
4. "	"	14MC	C	14MC	"	A9, A10	"
5. "	"	30MC	D	30MC	"	A11, A12	"

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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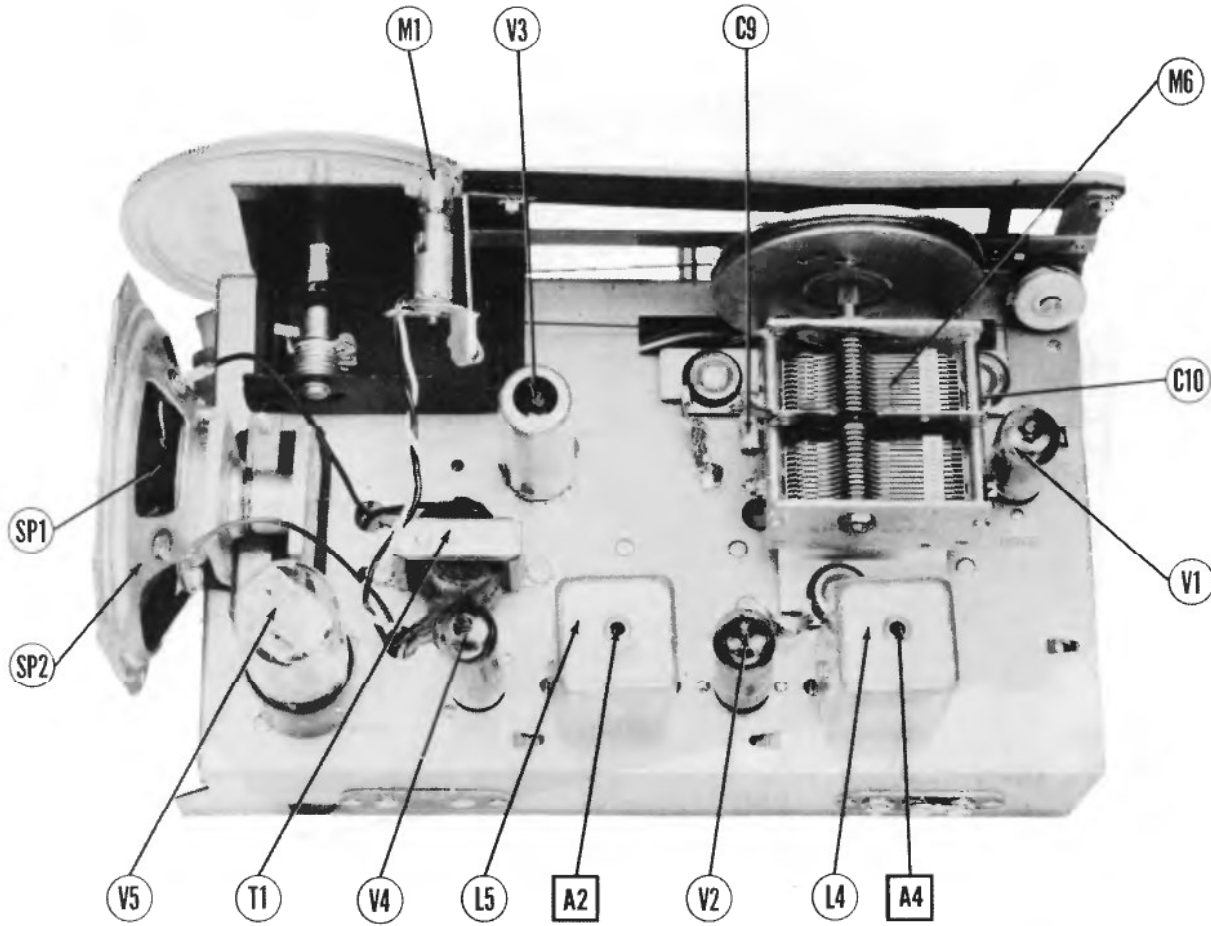
SET 141

FOLDER 9

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

NATIONAL
MODEL SW-54

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		NATIONAL PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	CWC-1F Amplifier	12BA6	12BA6	7BK	
V3	Det. -AVC-AF	12AV6	12AV6	7BT	
V4	Power Output	50C5	50C5	7CV	
V5	Rectifier	35Z5GT	35Z5GT	6AD	

ITEM No.	RATING CAP.	VOLT	REPLACEMENT DATA		IDENTIFICATION CODES AND INSTALLATION NOTES
			NATIONAL PART No.	AEROVOX PART No.	
C1A	6C	150	Q252-1	PRS130/80-40-20	Filter
C1B	40	150		PRS130/4	Filter
C1C	4	15			
C2	.01	400			
C3	.01	400	D827-5	P488-01	Output Cathode
C4	.02	200	D827D-426	SILONPO	Ant. Isolation
C5	.02	200	D827-51	P488-02	Fixed Trimmer
C6	.02	500	J665-55	1469-0005	AVC Filter
C7	.02	500	J665-70	1469-0001	Fixed Padder
C8	.02	500	J665-30	1467-003	Fixed Padder
C9	.02	500	D8250-410		Fixed Trimmer
C10	.02	500	J695-4	S13NPO	Osc. Coupling
C11	.02	200	D827-51	P488-01	Osc. Grid Cap.
C12	.02	200	D827-51	P488-02	Decoupling
C13	.02	120	D827-5	P488-01	Decoupling
C14	.02	200	D827-15	G72P25	AVC Filter
C15	.005	200	D827-50	P688-005	IF Amp. Decoupling
C16	.005	200	D827-50	P688-005	Audio Coupling
C17	.005	200	D827-50	P688-005	Audio Coupling
C18	.02	500	D827-44	P688-02	Output Grid
C19	.02	500	D827-44	P688-02	Output Plate
C20	.02	500	D827-44	P688-02	Rectifier Plate
C21	.02	500	D827-44	P688-02	RF Bypass
C22	.02	500	D827-44	P688-02	Diode RF Filter
C23	.02	500	D827-44	P688-02	Diode RF Filter

* Items C22A, C22B, R17 are combined in one unit and used with 2nd IF transformer Part No. Q243-2.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA		CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
		RESISTANCE	WATTS			
R1A	500KΩ			Q13-133	AM-60-Z	Volume Control
B	Shaf			Not Req	FS-3	Attach to R1A Per Instructions
C	Switch			Not Req	SWB	Attach to R1A Per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		NATIONAL PART No.	IRC PART No.	IDENTIFICATION CODES
		RESISTANCE	WATTS			
R2	47K			J569-9	BTS-22K	Parasitic Suppressor
R3	22KΩ			J569-41	BTS-22K	Osc. Grid
R4	47K			J569-9	BTS-560	Parasitic Suppressor
R5	56KΩ			J569-13	BTS-100	Decoupling
R6	10KΩ			J569-65	BTS-2, 2Meg	CWO-1F Amp. Cathode
R7	2.2Meg			J569-57	BTS-470K	AVC Network
R8	470KΩ			J569-73	BTS-10Meg	AF Amp. Grid
R9	10Meg			J569-53	BTS-220K	AF Amp. Plate
R10	22KΩ			J569-57	BTS-470K	Output Cathode
R11	470KΩ			J569-15	BTS-150	Voltage Divider
R12	15KΩ			J571-39	BTA-15K	Filter
R13	15KΩ			J571-25	BTA-1000	Fluorescent Shunt
R14	10KΩ			J569-19	BTS-330	Output XFMR Shunt
R15	33KΩ			J569-22	BTS-47K	Diode Filter
R16	22K			Q262-1		
R17	47KΩ					

* Items R1, C22A, and C22B are combined into one unit and used when the 2nd IF XFMR Part No. is Q243-2.

PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (AUDIO OUTPUT)**

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	NATIONAL PART No.	CHICAGO PART No.	
T1	1.9KΩ	3Ω	100Ω	5Ω	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	V.C. IMP.	NATIONAL PART No.	QUAM PART No.	
SP1	PM	3Ω	Q374-1	4AI	
SP2	CORE DIA. 4"	V.C. DIA. 9/16"	Mod. P4-X		

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	NATIONAL PART No.	MEISSNER PART No.	
L1A	Ant. Coll.	28Ω	3Ω	SA-7973		"A" Band
L1B	Ant. Coll.	.8Ω	.1Ω			"B" Band
L1C	Ant. Coll.	.92	.1Ω			"C" Band
L2	Ant. Coll.	.1Ω	0Ω	SA-7971		"D" Band
L3A	Osc. Coll.	2.4Ω		SA-7978		"A" Band
L3B	Osc. Coll.	1Ω				"B" Band
L3C	Osc. Coll.	.1				"C" Band
L3D	Osc. Coll.	0Ω				"D" Band
L4A	Input IF	20Ω	20Ω	Q242-1		Includes 2-87MMF Caps.
L4B	Input IF	20Ω	20Ω	Q243-1		Alternate
L5A	Output IF	20Ω	20Ω	Q242-2		Includes 2-110MMF Caps.
L5B	Output IF			Q243-2		Alternate

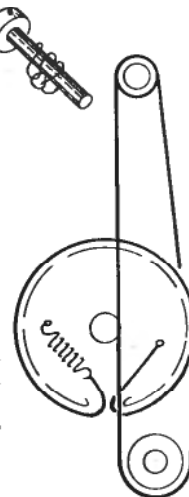
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		NOTES
				NATIONAL PART No.	BEAD COLOR	
M1	Bayonet	6-8	.15	F-136-11	Brown	Type number 47.

MISCELLANEOUS

ITEM No.	PART NAME	NATIONAL PART No.	NOTES
M2	Switch	SA-7972	Band
M3	Switch	SA-7978	Stand By- Receive
M4	Switch	SA-7977	AM-CW
M5	Switch	SA-7976	Speaker-Phones
M6	2 Gang Var. Cap.	K-577-2	(12-44)MMF, 12-44(MMF)
	Trimmer	D832-5	A5, A6, A7, A3, A9, A10, A11, A12
	Dial Scale	Q233-1	
	Cabinet	SA-7979	
	Dial Pointer	Q240-1	

TUNING GANG FULLY CLOSED

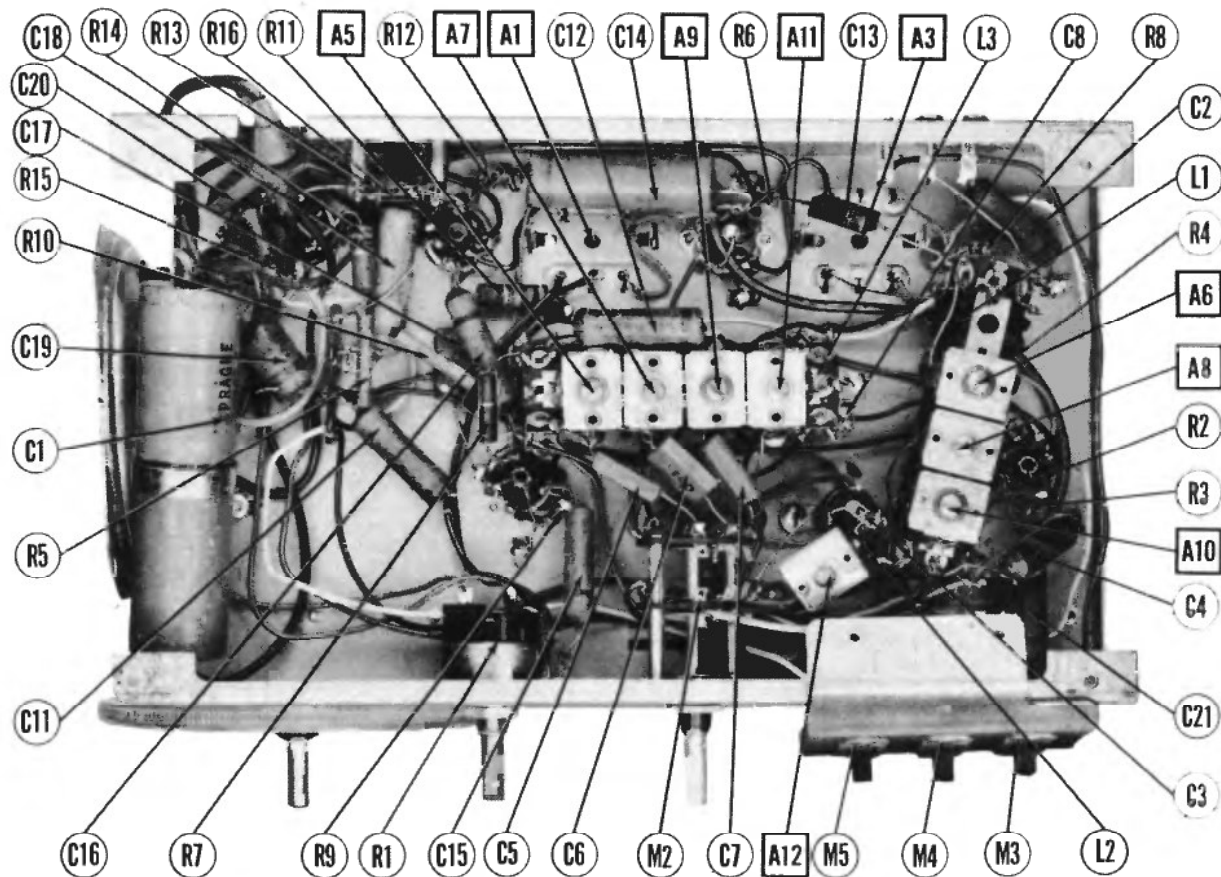


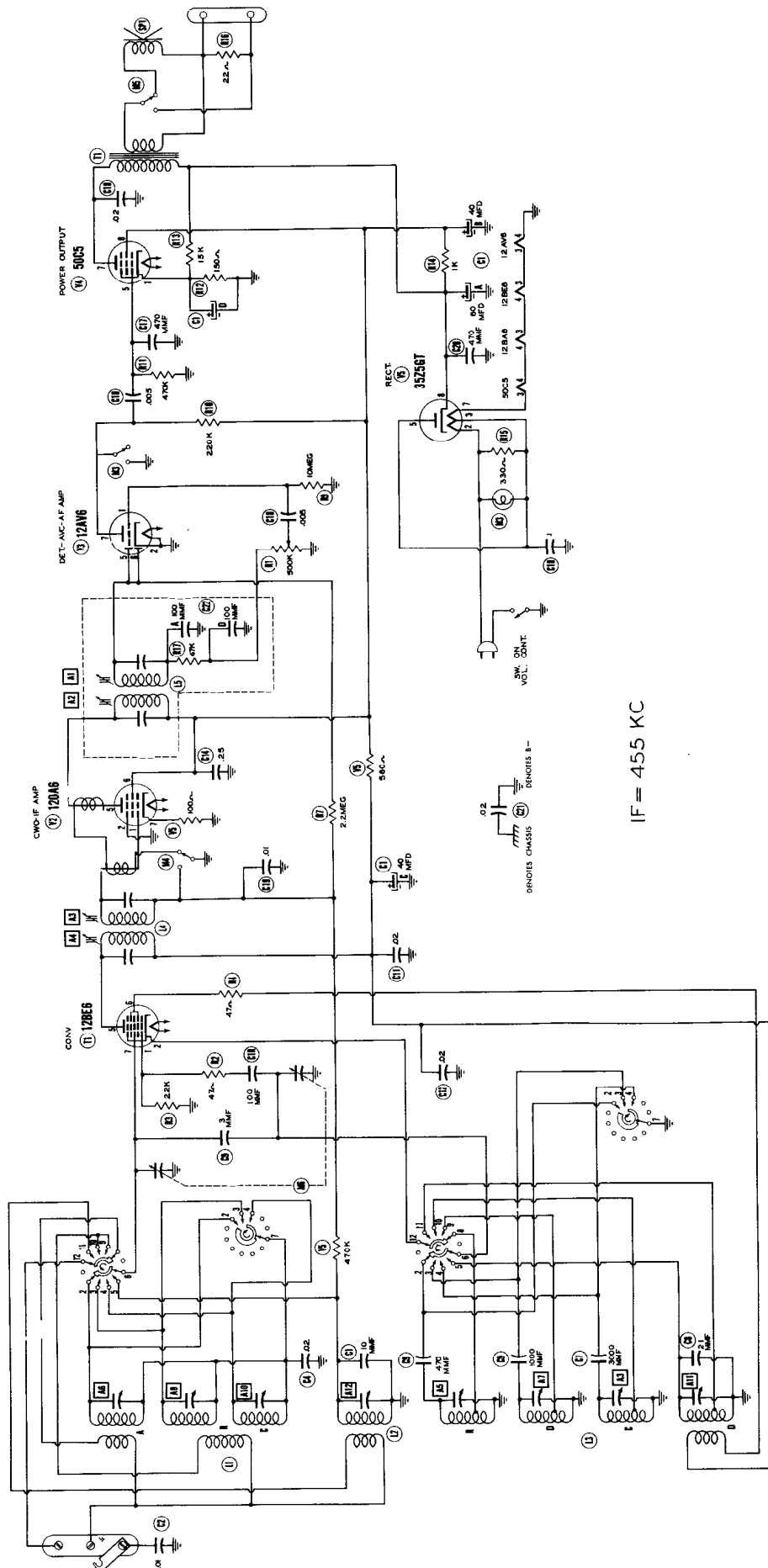
- Length of cord 38" including clip at one end and loop in other. Measure 16 3/4" from clip end and mark this point. Loop cord at mark and push thru hole in shaft. Bring ends of cord thru loop as shown and pull taut keeping marked point over hole.

- Wind clip end of cord 6 1/2 turns around shaft and with tuning capacitor at maximum hook clip to large pulley. Turn capacitor to minimum allowing other end of cord to wind itself around shaft.
- Pass cord around small pulley. Fasten spring to end of cord and clip to hole in pulley providing correct tension.

DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





Pin	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12BE6	1-6 BYDC 0V	2VAC	3VAC	4VAC	5VAC	6VAC	7VAC	8VAC
V2	12MB6	0V	1VAC	2VAC	3VAC	4VAC	5VAC	6VAC	7VAC
V3	12AX6	1-6 BYDC 0V	2VAC	3VAC	4VAC	5VAC	6VAC	7VAC	8VAC
V4	5005	1-6 BYDC 0V	2VAC	3VAC	4VAC	5VAC	6VAC	7VAC	8VAC
V5	35Z5GT	1-6 BYDC 0V	2VAC	3VAC	4VAC	5VAC	6VAC	7VAC	8VAC

Pin	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12BE6	1-6 BYDC 0V	2VAC	3VAC	4VAC	5VAC	6VAC	7VAC	8VAC
V2	12MB6	0V	1VAC	2VAC	3VAC	4VAC	5VAC	6VAC	7VAC
V3	12AX6	1-6 BYDC 0V	2VAC	3VAC	4VAC	5VAC	6VAC	7VAC	8VAC
V4	5005	1-6 BYDC 0V	2VAC	3VAC	4VAC	5VAC	6VAC	7VAC	8VAC
V5	35Z5GT	1-6 BYDC 0V	2VAC	3VAC	4VAC	5VAC	6VAC	7VAC	8VAC

ALL VOLTAGE MEASUREMENTS TAKEN IN BAND X POSITION.
AC-CW IF AMP.
RESISTANCE VALUES IN OHMS.

THE COOPERATION OF THE MANUFACTURERS OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.